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- (74) Agents: LILLY, James, V. et al.; Office of Intellectual Property Counsel, Post Office Box 33427, Saint Paul, MN 55133-3427 (US).
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(54) Title: PAVEMENT MARKING MATERIAL

(57) Abstract: A marking material for use on a surface, the marking material including a binder material and a thermal-sensitive pigment. The marking material exhibits a first color different from a surface color. Upon being heated to a temperature of at least about 70°C, the marking material undergoes an irreversible color change from the first color to a second color. The second color renders the marking material effectively invisible to an observer. A marker and a method of using the marker are also disclosed.





INTERNATIONAL SEARCH REPORT

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IPC 7	IFICATION OF SUBJECT MATTER C09D5/00 E01F9/04 C08K3/	00 CO9D5/26			
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IPC 7	ocumentation searched (classification system followed by classific CO9D E01F C08K	ation symbols)			
Documenta	tion searched other than minimum documentation to the extent that				
	save search to the extent the	it such documents are included in the fields s	earched		
Electronic d	ata base consulted during the international search (name of data	base and, where practical, search terms used)		
	ternal, PAJ, WPI Data	, ,	,		
C. DOCUMI	ENTS CONSIDERED TO BE RELEVANT				
Category *	Citation of document, with indication, where appropriate, of the	relevant passages	Relevant to claim No.		
χ	US 4 166 058 A (RABITO, THOMAS G	FT AL)	1,2,		
	28 August 1979 (1979-08-28)	,,	6-14,16,		
			17, 20-29,31		
	claims 1,2,4		20 25,51		
х	US 3 386 807 A (EDENBAUM MARTIN	I)	1-11,13,		
	4 June 1968 (1968-06-04)	,	14,		
			27 - 29, 31-37		
	abstract		01 0,		
	claims 1,4,5,10,11				
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X Furth	er documents are listed in the continuation of box C.	X Patent family members are listed in	n annex.		
Special categories of cited documents : "T" later document published after the International filing date					
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Tater than the priority date claimed "8" document member of the same patent family Date of the actual completion of the international search Date of mailing of the international search report					
8 April 2005 18/04/2005					
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European Patent Office, P.B. 5818 Patentlaan 2 NL – 2280 HV Rijswijk Tel. (+31-70) 340-2040, Tx. 31 651 epo nl,					
Fax: (+31-70) 340-3016 M111, S					

INTERNATIONAL SEARCH REPORT

Information on patent family members

International Application No PCT/US2004/009554

Patent document cited in search report		Publication date		Patent family member(s)	Publication date
US 4166058	A	28-08-1979	CA DE FR GB IT JP JP SE SE	1133163 A1 2929987 A1 2433038 A1 2028349 A ,B 1117777 B 1422520 C 55025498 A 62028837 B 446191 B 7906608 A	05-10-1982 21-02-1980 07-03-1980 05-03-1980 24-02-1986 29-01-1988 23-02-1980 23-06-1987 18-08-1986 12-02-1980
US 3386807	A	04-06-1968	NONE		
US 4661305	A	28-04-1987	AT CA DE EP GB JP JP	19026 T 1174845 A1 3174309 D1 0044750 A2 2081467 A ,B 3080093 B 57061070 A	15-04-1986 25-09-1984 15-05-1986 27-01-1982 17-02-1982 20-12-1991 13-04-1982
US 4121011	A	17-10-1978	NONE		
US 3450556		17-06-1969	NONE		

INTERNATIONAL SEARCH REPORT

International Application No PCT/US2004/009554

		PCT/US2004/009554				
C.(Continuation) DOCUMENTS CONSIDERED TO BE RELEVANT						
Category *	Citation of document, with Indication, where appropriate, of the relevant passages	Relevant to claim No.				
х	US 4 661 305 A (RAYCHEM CORP:) 28 April 1987 (1987-04-28) column 5, line 1 - line 14 column 5, line 57 - column 6, line 5 column 7; table 1	1-4,6, 8-14, 27-33, 35-37				
A	claim 1 US 4 121 011 A (GLOVER ET AL) 17 October 1978 (1978-10-17)	1-39				
	abstract; claim 1 column 3, line 32 - line 68 column 4, line 30 - line 40; example 1					
A	US 3 450 556 A (MILTON R. RADCLIFFE ET AL) 17 June 1969 (1969-06-17) abstract; claim 1	1-39				
						
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